A Time and a Place for Every Rider?: Geographic and Temporal Changes in Bay Area Transit Ridership

Jacob Wasserman, MURP

UNIVERSITY OF CALIFORNIA

Research Topic

Transit ridership is on the wrong track. Instead of recovering after the Great Recession, patronage is plummeting in metropolitan areas across America. This trend is especially troubling in light of how much money has been invested and service added in recent years. Just as transit is becoming more frequent and better funded, it is hemorrhaging riders.

Until 2016, the San Francisco Bay Area appeared immune to the ridership declines plaguing most other American cities. However, in 2017, Bay Area ridership began to fall — both regionwide and on almost all major transit operators in Northern California. Identifying the causes of this downturn, be they unique to the Bay Area or shared with other parts of the country, is a critical first step to reversing it.

The Bay Area's ridership decline has not occurred uniformly. Thus, to help explain why transit ridership has changed, this research examines how, where, and when it has changed across the region. Any policy response to falling ridership will be aided greatly by focusing on these agencies, lines, times, and places where transit use is changing the most.

Main Findings

- From 2016 to 2017, Bay Area transit patronage fell around four percent, or nearly 20 million annual boardings. But the problem has deeper roots — boardings per capita have been declining for the past decade.

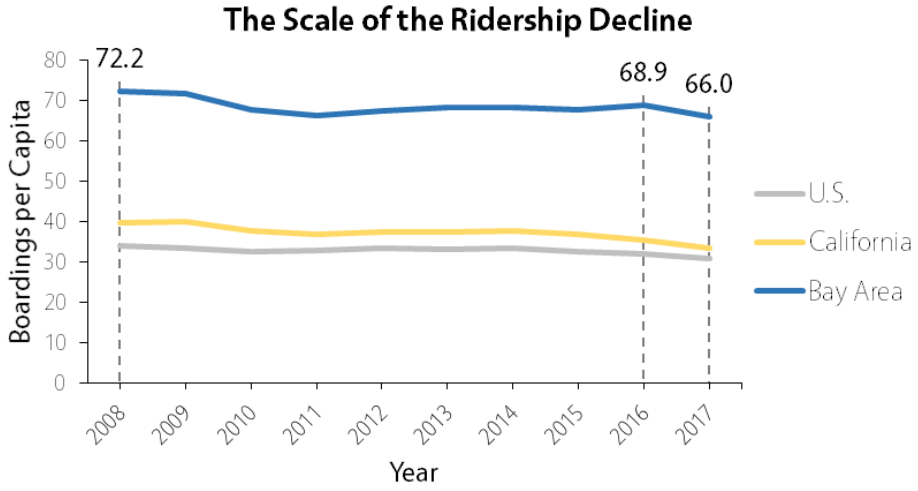

Figure 1. A sharp recent drop in Bay Area transit use — after a decade of slow declines.

KEY TAKEAWAYS

- Across the Bay Area, the steepest transit ridership losses have come at off-peak times, days, directions, and lines.
- These declines began before overall regional ridership fell, hidden by high performance at peak times and on larger operators.
- Concentrations of station-area jobs influenced ridership on Bay Area Rapid Transit more than any other factor examined. The effect of jobs on ridership grew between 2011 and 2015.

- Across the Bay Area and on its major transit agencies, the steepest ridership losses have come at off-peak times, days, directions, and lines. These declines began before overall regional ridership fell, hidden by high performance at peak times and on larger operators.

- Service changes are not causing recent ridership declines. In fact, transit patronage in Northern California is falling in spite of more service.

- The region's largest multi-jurisdiction operator, Bay Area Rapid Transit (BART), has seen the most severe peaking problems. This may be because the numbers and concentrations of station-area jobs influenced ridership on BART more than any other factor examined. The effect of jobs on ridership grew between 2011 and 2015.

Study

This study examines ridership change in the nine-county Metropolitan Transportation Commission region over the past decade. To explore the uneven decline of transit patronage, this research first looked at ridership and service data for the region as a whole and then for three of its largest operators in depth: the San Francisco Municipal Transportation Agency, BART, and the Santa Clara Valley Transportation Authority. These agency data allow for a detailed geographic and temporal breakdown of transit use trends. Following that, a multivariate statistical analysis simultaneously considered the various factors that have influenced ridership on BART to evaluate which have the greatest influence.

Conclusions

- Policymakers should focus on new pressures on off-peak transit (ride-hail, residential displacement, etc.). Given the continued strength of peak transit use, these factors merit more scrutiny than peak pressures like employment growth.

- In fact, transit operators should devise strategies to handle the problems that come with an over-reliance on peak ridership, like overcrowding

- When it comes to reviving off-peak transit use, these findings present a difficult dilemma. On the one hand, policies targeted at increasing non-commute, reverse direction, evening, and weekend trips are of great importance. On the other, the most significant factors that influence transit use tend to be beyond agencies' control. Policymakers must therefore make the difficult decision of whether to channel resources towards the most crowded trip types, to double down on their strongest market, or towards slumping trips types, to shore up the weakest parts of the transit network despite their limited control over them.

For More Information

Wasserman, Jacob. (2019). A time and a place for every rider?: Geographic and temporal changes in Bay Area transit ridership (Master's capstone, UCLA). Retrieved from: escholarship.org/uc/item/9bp6b51x

Manville, M., Taylor, B. D., & Blumenberg, E. (2018). Falling transit ridership: California and southern California. Los Angeles, CA: UCLA Institute of Transportation Studies.

Research presented in this policy brief was made possible through funding received by the University of California Institute of Transportation Studies (UC ITS) from the State of California via the Public Transportation Account and the Road Repair and Accountability Act of 2017 (Senate Bill 1). The UC ITS is a network of faculty, research and administrative staff, and students dedicated to advancing the state of the art in transportation engineering, planning, and policy for the people of California. Established by the Legislature in 1947, UC ITS has branches at UC Berkeley, UC Davis, UC Irvine, and UCLA.

Project ID UCLA ITS-LAS1906 | DOI: 10.17610/T6KW22

UCLA Institute of Transportation Studies